WHAT IS CLAIMED IS:

1. A method of determining the sonic slowness of a formation traversed by a borehole comprising generating tracks from sonic waveform peaks received at a plurality of depths, wherein the peaks are not classified prior to tracking.

2. The method of claim 1 wherein the step of generating tracks comprises classifying long tracks; classifying small tracks; classifying tracks that overlap; filling in gaps; and creating a final log.

3. The method of claim 2, wherein said filling in gaps further comprises using non-classified tracks to fill gaps.

4. The method of claim 2, wherein said filling in gaps further comprises performing interpolation.

5. The method of claim 4, wherein said interpolation is linear.

6. The method of claim 5 wherein linear interpolation is done if the small gaps are less than 6 frames.

7. The method of claim 3, wherein filling in gaps further comprising performing interpolation.

8. The method of claim 1, wherein tracks are considered as individual objects comprising peaks.

9. The method of claim 8 wherein said peaks are defined using semblance, time and slowness.

10. The method of claim 9 wherein only time and slowness are used for classification.

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11. The method of claim 10, wherein a probability of a track being one of a compressional and shear is determined using all points forming the track.

5   12. The method of claim 11, wherein classification of one track is independent of classification of a track different from said one track.

13. The method of claim 2, wherein step of classifying the long tracks further comprises:

    fitting a distribution function on peaks of the track;

10   calculating a mean and variance of the distribution;

    comparing distribution of the data with a distribution of a model data; and

    classifying the long track according to the model data if said comparison determines that the track data and model data are consistent.

15   14. The method of claim 2 wherein step of classifying the short tracks further comprises:

    computing a 2-D median of the track, said median being a point defined by corresponding coordinates in a slowness and time domain;

    determining an intersection of the slowness and time domain with a model data distribution;

20   defining the model in the slowness and time domain as an ellipse; and

    classifying the small track based on a position of the peak in relation to the model data.

15. The method of claim 2, wherein step of filling in the gaps further comprises:

    determining if there is a gap in a selected track at a depth range covered by the selected

25   non-classified track;

    deleting the track if no gap is found; and

    filling the gap in the selected track after determining that the selected non-classified track can be used to fill the gap.

16. The method of claim 15, wherein said determining if the selected track can be used to fill the gap is done by evaluating if the selected track is between upper part and lower part of a skeleton, wherein said skeleton comprises tracks that have been classified so far.

5   17. The method of claim 2, wherein said long track comprises more than 20 frames.

18   The method of claim 2, wherein said small track comprises less than or equal to 20 frames.

10   19. The method of claim 14, wherein said model is one of a compressional model or shear model.

20. The method of claim 13 wherein slowness and time peaks are treated having Gaussian probability distribution.

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21. The method of claim 20 wherein 2D Gaussian probability distribution of slowness and time peaks is measured at one depth based on measurements at a previous depth.

22. The method of claim 20 wherein said measurement is done by a 2D Kaman filter process.

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23. A computer system for performing a method of determining the sonic slowness of a formation traversed by a borehole comprising generating tracks from sonic waveform peaks received at a plurality of depths, wherein said method comprises classifying long tracks, classifying small tracks, classifying tracks that overlap, filling in gaps and creating a final log,

25   wherein the method is implemented in a program stored on a storage media and the output is applied to at least one output device.

24. A method of determining the sonic slowness of a formation traversed by a borehole comprising generating tracks from sonic waveform peaks received at a plurality of depths,

30   comprising

a) classifying long tracks of greater than 20 frames, further comprising fitting a distribution function on peaks of the track; calculating a mean and variance of the distribution; comparing distribution of the data with a distribution of a model data; and classifying the long track according to the model data if said comparison determines that the track data and model

5   data are consistent;

b) classifying small tracks of less than or equal to 20 frames, further comprising computing a 2-D median of the track, said median being a point defined by corresponding coordinates in a slowness and time domain; determining an intersection of slowness and time domain with a model data distribution; defining the model in the slowness and time domain as an

10   ellipse; and classifying the small track based on a position of the peak in relation to the model data;

c) classifying tracks that overlap;

d) filling in the gaps, further comprising determining if there is a gap in a selected track at a depth range covered by a selected non-classified track; deleting the track if no gap is found;

15   and filling the gap in the selected track after determining that the selected non-classified track can be used to fill the gap; and

e) creating a final log.